

Welcome students.

In this module we are going to learn about earthquakes.

The different types of earthquakes and their classification.

You will be able to know about the different types of classifications of earthquakes.

Let us familiarize with a few terms. Before we go to the classification.

An earthquake. Is a sudden vibration of earth surface by rapid release of energy?

These earthquakes occur when rocks under stress fail.

And this failure releases energy. This kind of releases occur at geological structures called faults.

Focus.

Shock waves originate from a point where this faulting takes place or the disturbance takes place.

And these travel in all directions. In the form of vibrations. The point of origin.

Of the earthquake below the surface is defined as a focus.

It is also called as a hypocenter.

As you can see in this image.

This is the point where a geological fault has occurred.

And the energy is radiating in all the directions from  
this point.

The point which is.

vertically above, the focus is called epicenter.

And this is the point where.

The vibrations reach first.

And it is also the same point where the intensity of  
destruction is maximum.

From the study of.

The earthquakes in the past.

There has been an observation.

That The earthquakes don't occur deeper than 700 kilometers  
under the surface.

The focii of majority of the earthquakes were lying between  
50 kilometer only.

Few were lying between 300 to 700 kilometers.

Classification of earthquakes.

The earthquakes are classified based on depth

of focus magnitude.

And cause of origin.

First, let us learn about the depth based classification.

Based on the depth.

Of the focus which we have

learned earlier. The earthquakes are classified into three types.

That is. Shallow.

Intermediate. And deep focus earthquakes.

When the depth of the focus is about 60 kilometers below the

surface. We call this kind of earthquake as a shallow focus

earthquake. A majority of

earthquakes. Which were recorded in the past were of this type.

Intermediate focus when the depth of the origin of

earthquake. Is between 60 to 300 kilometers below the surface.

We call these earthquakes as.

Intermediate focus earthquakes.

These are rarer in occurrence as compared to the shallow focus

earthquakes. The effects of these earthquakes are

felt over large areas.

Deep focus When the depth of origin of.

The earthquake is between 300 to 700 kilometers below the

surface. We call this earthquake as a deep focus earthquake.

And these kind of earthquakes are very rare.

The next classification is classification based on magnitude.

Magnitude is the rating of an earthquake based on amplitude of seismic waves and these are recorded on seismograms.

And these are mentioned on Richter scale. Richter scale is a scale used to determine magnitude of a particular earthquake.

Earthquakes based on this classification. Are divided into 5 classes.

That is.

Class A when the magnitude is between 7.8 and above.

Class B, when the magnitude is 7 to 7.7. Class C.

When the magnitude is between 6 to 7, class D, when the magnitude is between 5.3 to 6 Class E. When the magnitude is less than 5.3.

One should keep in mind that the earthquakes of Class A.

That is, having a magnitude of 7.8 and above a highly destructive, whereas Class E.

Are not much significant when it comes to engineering structures.

The next classification is the classification based on origin

an. In this classification we have two broad classes and these

are tectonic earthquakes, an non

tectonic earthquakes. In structures like fault in the

Earth's crust. Where there is displacement of blocks.

We have earthquakes.

And this becomes a very common cause of origin of

earthquakes.

And we call these as.

Tectonic earthquakes the next class is non tectonic

earthquakes. When the origin of a particular earthquake.

Is caused by.

Any other cause like volcanism or explosion or landslides

We called this.

Kind of earthquakes as non-tectonic earthquakes.

Here are some references.

Thank you.